

# PATENT SPECIFICATION

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(72) Inventor DAVID FRANKEL



## (54) CURTAIN-SIDED VEHICLE

(71) We, STRUCTURE-FLEX LIMITED, a British Company, formerly of Barge Walk, Gruburn Way, East Molesey, Surrey, now of 27 The Precinct, East Molesey, Surrey, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to curtain-sided vehicles.

15 It is common practice to employ heavy-duty curtains as a side wall or cover for a vehicle body for carrying goods. Where the curtains are simply used for weather-proofing, their precise structural strength and tautness is not of critical importance. However, in many applications nowadays, curtains are used both for weather-proofing and also to form the structural side of the vehicle body, i.e. the curtains are expected to contain and restrain the load. Most recently various proposals have been made including the use of tensioned straps extending from a rail at the edge of the roof of the vehicle body to the edge of the floor of the vehicle body. These straps provide structural strength for containing the goods carried, but do not actually tension the curtain itself.

20 According to the present invention, there is provided a vehicle body which includes a woven curtain as one side thereof, the curtain including as an integral part of its weave reinforcing bands extending from top to bottom of said side, and means for tensioning said bands and said material between a top rail of the side and the edge of the floor of the body. Preferably, the fabric also includes reinforcing bands which extend longitudinally of the said side.

25 The invention also provides a fabric material, particularly for use on curtain sided vehicles wherein the weave of the fabric includes at intervals bands of fibres which are of very much higher tensile strength than the fibres of the rest of the fabric. Preferably, the fabric is basically of polyester fibre and the bands are of an aromatic polyamide fibre known under the trade name of "Kevlar" (Registered Trade Mark). The fabric is pref-

erably p.v.c. coated.

The invention will now be described with reference to the accompanying drawings, which shows a typical weave of a fabric according to the invention. The fabric width is 150 cm. and includes three bands of "Kevlar" fibres extending along the length of the fabric. Each band is approximately 40 mm wide, one on one edge of the fabric and the other two at points  $\frac{1}{3}$  of the way across the fabric. In addition, similar bands of "Kevlar" are woven-in across the fabric, again at spacings of approximately 50 cm and themselves having a width of 40 mm.

Tests on this material show that the tensile strength of the fabric is very much increased and the elongation decreased both in the weft and warp directions.

When used as a curtain for a vehicle body, two lengths of the fabric can be joined by high frequency welding and by stitching. Two widths are normally necessary to produce a curtain of the correct height for a vehicle side. A number of support rollers are attached at the upper edge of the fabric, particularly at the points where the transverse bands of reinforcing material terminate to enable the curtain to be opened and closed. Similarly, a short distance, for example 60 cm, from the other end of the same reinforcing bands, attachments for tensioning means are attached by rivetting, stitching or welding. Each tensioning means may comprise a short strap, including an over-centre buckle, and a hook or other attachment at its lower end for engaging the rail on the edge of the vehicle floor. With the hooks engaged and the buckles tensioned, the curtain is held stationary.

The curtain can also be provided with means at its opposite ends which allow it to be tensioned along the side of the vehicle body. In particular, a tubular channel may be provided by turning over and sewing or welding the ends of the fabric.

In other applications, the fabric width may be 200 cms, or indeed any width; and may have any desired number of bands of "Kevlar" fibres and any desired spacing. Other types of fibres may also be used.

The curtains may alternatively be formed by attaching vertically extending lengths of the fabric side-by-side. Any other suitable joining technique can be used, such as hot knife or hot air welding, and/or sewing.

5 In use, a curtain on a vehicle body provides the normal weather proofing which would be expected. In addition, the strengthening bands when tensioned between the  
10 floor and the roof of the vehicle body provide effective vertical struts of great strength for restraining a load carried by the vehicle. Further, the tensioning of the bands also ensures that the curtain itself is tensioned  
15 and that the vehicle side is streamlined and therefore causes minimum windage.

**WHAT WE CLAIM IS:—**

- 20 1. A vehicle body which includes a woven curtain as one side thereof, the curtain including as an integral part of its weave reinforcing bands extending from top to bottom of said side, and means for tensioning said bands and said material between a top  
25 rail of the side and the edge of the floor of the body.
2. A vehicle body as claimed in Claim 1 wherein said curtain has as an integral part of its weave longitudinal reinforcing bands  
30 extending along the length of said side.
3. A vehicle body as claimed in Claim 1 or 2 wherein said curtain has support rollers at its top edge which allow it to be opened and closed.
- 35 4. A vehicle body as claimed in Claim 1, 2 or 3 wherein said means for tensioning comprises a number of buckles connected to the curtain at or adjacent its bottom edge.
- 40 5. A vehicle body as claimed in Claim 4 wherein said buckles are over-centre buckles.
6. A vehicle body as claimed in Claim 4 or 5 wherein said buckles are attached to straps connected to the curtain.
- 45 7. A vehicle body as claimed in any preceding claim which includes means for tensioning the curtain longitudinally.
8. A vehicle body as claimed in any preceding Claim wherein the weave is basically of a polyester fibre, and the bands of  
50 fibres are of an aromatic polyamide fibre.
9. A vehicle body as claimed in any preceding Claim wherein the fabric is coated with p.v.c.
- 55 10. A vehicle body as claimed in any preceding Claim wherein the bands of fibres are spaced 50 cms apart and each band has a width of 4 cms.
- 60 11. A vehicle body substantially as described herein with reference to the drawings.

For the Applicants,  
J. F. WILLIAMS & CO.,  
Chartered Patent Agents,  
34 Tavistock Street,  
London WC2E 7PB.

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COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of  
the Original on a reduced scale*

